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IN MAGNETOHYDRODYNAMICS NO. 1, JANUARY-DECEMBER, 1975

Sponsored By

Defense Advanced Research Projects Agency

DARPA Order No. 3097

March 22, 1976

DARPA Order No. 3097

Program Code No. P6L10, P6D10, P6E20, P6G10

Name of Contractor:
Informatics Inc.

Effective Date of Contract:
September 1, 1975

Contract Expiration Date:
February 29, 1976

Amount of Contract: \$138, 147

Contract No. MDA-903-76C-0099

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Short Title of Work:
"Soviet MHD"

MAR 31 1976

This research was supported by the Defense Advanced Research Projects Agency and was monitored by the Defense Supply Service - Washington, under Contract No. MDA-903-76C-0099. The views and conclusions contained in this document are those of the authors and should not be interpreted as necessarily representing the official policies, either express or implied, of the Defense Advanced Research Projects Agency or the United States Government.



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	9. PERFORMING ORGANIZATION NAME AND ADDRESS Informatics, Inc. 3000 Executive Foulerard Rockville, Maryland, 20852		DARPA Order 3/97 Program Code Po. P6L10, P6D10 16 120. P6C10		
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	Washington, D. C. 20310		15. DECLASSIFICATION/DOWNGRADING SCHEDULE		
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	17. DISTRIBUTION STATEMENT (of the abstract enterad in Block 20, II different from Report)				
	18. SUPPLEMENTARY NOTES				
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ŀ	19. KEY WOROS (Continue on reverse side if necessary an	d identify by block number)			
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INTRODUCTION

This bibliography has been compiled by Informatics Inc. in response to an ARPA contractual requirement to monitor current Soviet developments in the field of magnetohydrodynamics. The period covered is 1975, and includes all known references to MHD topics in open-source Soviet bloc material published or cited in that year.

In so broadly-based a topic as MHD, many different disciplines provide pertinent input. Thus in addition to publications expressly devoted to MHD, there is a large body of articles from journals on high temperature combustion, fluid dynamics, refractory materials, plasma physics, magnetics, etc. which apply to various aspects of magnetohydrodynamics. For the present purpose the selections have been generally limited to those relevant to MHD power generation, although a much broader inclusion could be justified. The bibliography nevertheless indicates a wide range of sources; in addition to the regular serial journals there were over 60 publications of the collection, proceedings or monograph type appearing in 1975 alone in the USSR on MHD. Regrettably, many of this type of special publication are often unobtainable outside the USSR, owing to the Soviet practice of frequently publishing them in very small numbers.

For the sake of consistency, the topic breakdown used is the same as that of the comprehensive ERDA bibliography on magnetohydrodynamics, *published in 1975, with the exception that we have not included electrohydrodynamics as a topic. Again, with an enlarged coverage a more detailed topic breakdown than the six assigned categories herein would probably be more useful in future coverage of the Soviet MHD material. Russian sources are generally

^{*}Magnetohydrodynamics - power generation and theory: a bibliography. USERDA, November 1975, no. TID-3356.

abbreviated for simplicity; the full titles are listed at the end of the bibliography. A parenthesized entry (RZh, KL, etc.) stands for a secondary source in which the citation appears; all other cited sources are available in the Informatics Library. Russian authors publishing in U.S. journals have generally been omitted.

In summary, while not an exhaustive treatment of the subject, this collection is offered as a reasonably comprehensive listing of significant Soviet MHD publications in 1975.

1. MHD General

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- 2. Chursin, M. M. Magnitogidrodinamicheskiye generatory. Ucheb. posobiye (MHD generators. Basic text.) Moskva, 1974, 183 p. (KL, 29/75, no. 25644)
- 3. Elektroenergetika i magnitnaya gidrodinamika. Sbornik statey.

 (Electrical energy and magnetohydrodynamics. Collection of articles).

 Kiyev, Tekhnika, 1974, 208 p. (RZhF, 2/75, 2G160K)
- 4. Electromechanics, automation and applied magnetogasdynamics.

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- 5. Foliforov, V. M. All-Union technical seminar on use of MHD pumps and chokes in the economy. MG, no. 4, 1975, 15-152.
- 6. Golovachov, V. MHD the modern way of generating electricity.
 Moscow News, no. 45, Nov. 16-23, 1974, 11.
- 7. Kirillin, V. A., et al. <u>Prospects for MHD energy conversion</u>. IN: Sb 41, 1975, 3-16. (RZhElektrotekhenerg, 11/75, 11F3).
- 8. Magnitogidrodinamicheskiye i elektrofizicheskiye kharakteristiki potokov provodyashchego gaza (Magnetohydrodynamic and electrophysical characteristics of conducting gas flow). IN: Sb 32, no. 8, Moskva, 1973, 148 p. (RZhElektrotekhenerg, 1/75, 1F37).
- 9. Magnitogidrodinamicheskiye ustanovki. Sbornik statey (Magnetohydrodynamic devices. Collection of articles). Inst. vysokikh temperatur, Moskva, 1975, 126 p. VAN, no. 10, 1975, 132.

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- 14. Sukhorukov, V. V. Matematicheskoye modelirovaniye elektromagnitnykh poley v provodyashchikh sredakh (<u>Mathematical modeling of e-m fields in conducting media</u>. Moskva, Energetika, 1975, 152 p. (RZhMekh, 11/75, 11B63)
- 15. Tsinober, A. B. Work of the Riga seminar on turbulent MHD flows. MG, no. 3, 1974, 156-157. (RZhMekh, 3/75, 3B44)
- 16. Vasil'yev, N. N., and A. V. Nedospasov. <u>Use of MHD generators in nuclear plants</u>. IAN Energ, no. 6, 1975, 73-78.
- 17. Vos'moye Rizhskoye soveshchaniye po magnitnoy gidrodinamike, T. 3. MGD-metody i ustroystva (8th Riga Conference on magnetohydro-dynamics, Vol. 3, MHD methods and installations). Riga, 1975, 144 p. (RZhElektrotekhenerg, 10/75, 10F1)
- 18. Vsesoyuznaya konferentsiya po primeneniya magnitnoy gidrodinamiki v metallurgii. Seminar po mekhanika sploshnyk sred. (All-Union conference on MHD applications in metallurgy. Seminar on mechanics of continuous media). Perm'. 1974, 85 p. (RZhF, 2/75, 2Gl69K)

19. Wehner, F. 20,000 meters under the Pamirs [MHD generator used for seismic sounding]. Neues Deutschland, 6/7 Sept. 1975, p. 16.

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- 23. Apukhovskiy, A. I., and A. P. Rashchepkin. <u>Inverting a D-C current containing complex ripple spectra.</u> IN: Sb. 35, no. 1, 1974, 41-47. (RZhF, 1/75, 1G262).
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- 25. Asinovskiy, E. I., et al. <u>Study on performance of electric arc electrodes</u> for an MHD generator. TVT, no. 4, 1975, 830-835.
- 26. Barinberg, A. D., et. al. <u>Modeling of MHD devices</u>. MG, no. 2, 1975, 115-121.
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7. SOURCE ABBREVIATIONS

AE - Atomnaya energiya

AN SSSR PM - Akademiya nauk SSSR. Institut prikladnoy

matematiki. Moscow.

DAN SSSR - Akademiya nauk SSSR. Doklady

FGiV - Fizika goreniya i vzryva

GAO - Glavnaya Astronomicheskaya Observatoria,

Pulkovo.

IAN Arm - Akademiya nauk Armyanskaya SSR.

Izvestiya Mekhanika.

IAN SO SSSR - Akademiya nauk SSSR. Sibirskoye

otdeleniye. Izvestiya

IVUZ Avia - Izvestiya vysshikh uchebnykh zavedeniy.

Aviatsionnaya tekhnika

IV''Z Elektromekh - Izvestiya vysshikh uchebnykh zavedeniy.

Elektromekhanika.

KL - Knizhnaya letopis'

KLDV - Knizhnaya letopis' - Dopolnitel'nyy vypusk.

LZhS - Letopis' zhurnal'ynykh statey

MG - Magnitnaya gidrodinamika

M ZhiG - Akademiya nauk SSSR. Izvestiya.

Mekhanika zhidkosti i gaza.

PM - Prikladnaya mekhanika

PMM - Prikladnaya matematika i mekhanika

Por. Metal - Poroshkovaya metallurgiya

RBL - Russian Book List

R Zh Elektrotekhenerg - Referativnyy zhurnal. Elektrotekhnika i

energetika, 21F

Sb 1		Sbornik. Materialy Vses. shkoly po differents. uravneniyam s beskonech. chislom nezavisimykh peremennykh i po dinamichesk. sistemam s beskonech. chislom stepeney svobody. Dilizhan, AN Arm SSR.
Sb 2	-	. Preobrazovatel'n. i elektroizmerit. Tekhnika, Kiev.
Sb '3	-	Teor. i prikl. mekh.
Sb 4	-	. Matematika i mekhanika, Alma-Ata.
S b 5	-	. Sovrem. probl. teplovoy gravitats. konvektsii, Minsk.
Sb 6	=	. Uralsk. konf. po primeneniyu magnit. gidrodinam. v metallurgii. Perm.
Sb 7	-	Raschet na prochnost' i zhestkost' elementov s-kh mashin i tekhnol oborud. Rostov na Donu.
Sb 8	-	. Mosk. obl. ped. in-t, Moscow.
Sb 9	-	. Veses. konf. po primeneniyu magnit. gidrodinam, v metallurgii, Perm.
Sb 10	-	. Materialy Konf. molodykh uchenykh Mordovsk, un-t. Estestv. i tekh. n. Saransk.
Sb 11	-	Sovrem. probl. teplovoy gravitats.
Sb 12	-	. VI Vses. konf. po generatoram nizkotemperatur. plazmy. Frunze.
Sb 13	-	Elektoenerg. i magnit.
Sb 14	-	Fiz. aerodispersn. sistem.
Sb 15	-	Chisl. metody mekh. splosh. sredy.
Sb 16	-	Gidromekhanika. Moscow
Sb 17	-	Protsessy i apparaty v magnitniy pole. Apatity.

Sb 18	=	. Geofizicheskiye issledovaniya, Minsk.
Sb 19	-	Dinamika i ustoychivost' mnogomern. sistem. Kiev.
Sb 20	-	. Raboty po mekhaniki sploshnoy sredi, Tula.
Sb 21	-	. Izbranyye problemy prikladnoy mekhaniki, Moscow.
Sb 22	-	Elektronika i modelirovaniye, Kiev.
Sb 23	-	Teploobmen. Moscow.
Sb 24	-	Nauchnyy institutut vychislitel'nogo tsentra, Moskovskiy universitet, Moscow.
Sb 25	-	Raspredelennoye upravleniye protsessami v sploshikh sredakh, Kiev.
Sb 26	-	• Problemy tekhnicheskoy elektrodinamiki. Moscow.
Sb 27	Ξ	. Aerofizicheskiye issledovaniya, Novosibirsk.'
Sb 28	-	. 8th Rizh. soveshchaniya po magnit. gidrodinamike, Riga.
S b 29	-	. Teplo. i massoobmen v khimicheskoy tekhnologii, Kazan'.
Sb 30	-	Matematicheskaya fizika,
Sb 31	-	. Kibernetika i vychislitel'naya tekhnika, Moscow.
Sb 32	-	Energeticheskiy institut im. G. M. Krzhizhanovskogo, Moscow.
Sb 33	-	Teplotekhnicheskiye problemy pryamogo preobrazovaniya energii. Kiev.
Sb 34	-	. Stroyeniye, svoystva i primeneniye metallidov. Moscow.

<i>S</i> b 35	-	. Voprosy MGD preobrazovaniya energii. Kiev.
Sb 36	-	. Materialy dokl. XI nauch. sesii, posvyashch. itogam nauchissled. rabot resp/ po koordinir. AN AzSSR probl. yestestv. i obshchestv. nauk za 1973. Baku.
Sb 37	-	Energetika, Kuybyshev.
Sb 38	-	. Voprosy gazotermodinamiki energoustanovok. Khar'kov.
Sb 39	-	Energetika, Voronezh.
Sb 40	-	. Institut vysok. temperatur, AN SSSR, Moscow
Sb 41	-	. Magnitnogidrodinamicheskiye ustanovki. Moscow.
Sb 42	-	Fiz. i primeneniye plazm uskoriteley, Minsk.
Sb 43	-	. Teplofizika i termodinamika, Sverdlovsk.
Sb 44	-	Fiz. institut, AN SSSR, Moscow.
TVT	ıτ	Teplofizika vysokikh temperatur
Tr 1	-1	Trudy. Frunze politekhnicheskiy institut Frunze.
Tr 2	-	Tsentr. Aero-Gidrodinam. Institut, Moscow.
Tr 3	-	Yerevan un-t. Yestestv. nauk.
Tr 4	71	Molodoy nauch. rabotnik, Yerevan.
Tr 5	-	Mosk. energ. in-ta., Moscow
Tr 6	-	Mosk. fiztekhn. in-ta, Moscow
Tr 7	-	Inst. mekh., Mosk un-ta, Moscow
Tr 8	-	Kazan'. Aviatsionnyy institut.
Tr 9	-	. Matematicheskiy Institut, AN SSSR, Moscow.
Tr 10	-	Moskovskiy Aviatsionyy Institut, Moscow.

Tr 11	-	Tallin Politekhnicheskiy Institut,
Tr 12	-	. Azerb. nauchissled. institut energetiki, Baku.
UFN	-	Uspekhi fizicheskikh nauk
VAN	-	Akademiya nauk SSSR. Vestnik
VAN UKrSSR	-	Akademiya nauk Ukrainskoy SSR. Vestnik
VLU	-	Leningradskiy universitet. Vestnik
ZhETF	-	Zhurnal eksperimental'noy i teoreticheskoy fiziki.
ZhETF P	-	Pis'ma v Zhurnal eksperimental'noy i teoreticheskoy fiziki.
ZhPKh	-	Zhurnal prikladnoy khimii.
ZhPMTF	-	Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki.
ZhTF	-	Zhurnal tekhnicheskoy fiziki.
ZhTF P	-	Pis'ma v Zhurnal tokhnicheskoy fiziki.